

REMARKS

In view of the following remarks, the Examiner is requested to withdraw the rejections and allow Claims 1-17 and 29-41, the only claims pending and currently under examination in this application.

Claims 1, 10, and 30 are amended to clarify that the at least one firing chamber is configured such that energization of a resistor of the firing chamber causes fluid expulsion from through the orifice of the firing chamber, where the orifice is an orifice of the orifice plate. Support for these amendments is found in the specification section at p. 12, lines 1-3: "As a result, energization of a given resistor causes fluid expulsion from the desired orifice through the orifice plate." As such, no new material is added by way of these amendments.

Claim Rejections - 35 USC § 103(a)

Claims 1-17 and 29-41 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kneezel et al. (US Patent No. 5,939,206), erroneously referred to as "Chan et al." in the office action dated May 18, 2007, in view of McDevitt et al. (US Patent No. 6,713,298).

On July 13, 2007, the Examiner stated during a telephone interview that the correct inventors associated with US Patent No. 5,939,206 are Kneezel et al. As such, Kneezel et al. will be used to refer to US Patent No. 5,939,206 throughout this response in place of Chan et al.

Kneezel et al. in view of McDevitt et al. fail to teach or suggest the claimed element of a single orifice plate comprising a plurality of orifices and a plurality of thermal printhead dies each comprising a top and bottom surface, wherein the top surface comprises a plurality of resistors and is bonded to a surface of the orifice plate, wherein said resistors are in operational alignment with said orifices to produce at least one firing chamber having a resistor and orifice configured such that energization of the resistor causes fluid expulsion through the orifice of the orifice plate.

The Examiner alleges that Kneezel et al. teach a single orifice plate according to diagram element 16 and column 3, line 46. However, diagram element 16 is not a single orifice plate as claimed. Kneezel et al. state at column 21, lines 31-32 that 16 is a passivation film. Although etched recesses, diagram elements 26 and 38 (see column 22, lines 1-2 and column 20, line 3), are patterned into passivation film 16, Kneezel et al. still fail to teach a single orifice plate as claimed because energization of a given resistor would not cause fluid expulsion from the recesses 26 and 38 through passivation film 16. Fluid fills channels 20, comprising recess 26, by way of recess 38 due to capillary action and not because a given resistor is energized (see column 19, line 67 through column 20, line 4, and see column 22, line 1-4). As such, recesses 26 and 38 are not orifices, nor is passivation film 16 a single orifice plate as claimed in the present case.

The Examiner alleges that Kneezel et al. teach that the top surface (top surface of 26) of a thermal printhead die is bonded together (column 5, lines 6-13) to a surface of said orifice plate (according to Figure 3, allegedly showing that top 26 is bonded to bottom of 16). Figure 3 is reproduced below for convenience.

Figure 3 of Kneezel et al. is as follows:

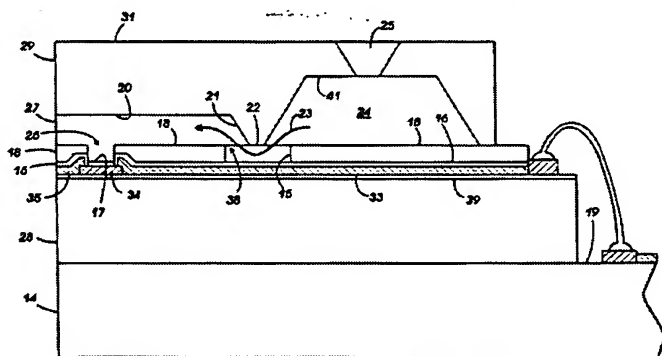


FIG. 3

As stated above, diagram element 16 is a passivation film and not a single orifice plate as claimed (column 21, lines 31-32). Furthermore, diagram element 26

is an etched recess (column 22, lines 1-2). Recess 26, representing the absence of layer 18, is not a structure to which something can be bonded. As such, Kneezel et al. fail to teach a single orifice plate bonded to the top surface of a thermal printhead die as claimed.

As such, Kneezel et al. fail to teach the claimed element of a single orifice plate comprising a plurality of orifices and a plurality of thermal printhead dies each comprising a top and bottom surface, wherein the top surface comprises a plurality of resistors and is bonded to a surface of the orifice plate, wherein the resistors are in operational alignment with the orifices to produce at least one firing chamber configured such that energization of a resistor causes fluid expulsion from through the orifice of the orifice plate.

Furthermore, Kneezel et al. fail to suggest this claimed element. Kneezel et al. teach more than once an intervening layer between the nozzle plate and the top of the thermal printhead die. As seen in Figure 5 (copied below), Kneezel et al. demonstrate that the flow directing layer 50 separates the nozzle plate 52 from the heating element 46. Kneezel et al. explicitly states that the nozzle plate is not bonded to the heating element 46 at column 23, lines 57-60: "a nozzle plate 52 containing nozzles 53 is aligned and bonded to flow directing layer 50 so that the nozzles are directly above the heating elements." Additionally, Kneezel et al. explicitly teach an intervening insulating layer 18 separating the upper and lower substrates of Figure 3: "Layer 18 is a thick film passivation layer, discussed later, sandwiched between the upper and lower substrates." (column 20, lines 19-21). As such, Kneezel et al. do not suggest that a single orifice plate comprising a plurality of orifices is bonded to the top surface of a thermal printhead die.

Figure 5 of Kneezel et al. is as follows:

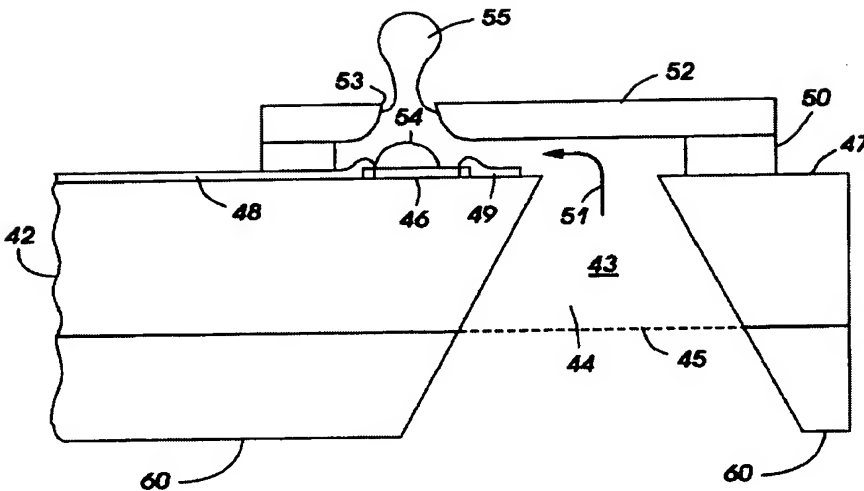


FIG. 5

As such, Kneezel et al. fail to suggest the claimed element of a single orifice plate comprising a plurality of orifices and a plurality of thermal printhead dies each comprising a top and bottom surface, wherein said top surface comprises a plurality of resistors and is bonded to a surface of said orifice plate, wherein the resistors are in operational alignment with said orifices to produce at least one firing chamber configured such that energization of a resistor causes fluid expulsion through the orifice of the orifice plate.

Because McDevitt et al. was cited solely for teaching that an array of biopolymers such as DNA and proteins can be applied onto a substrate through a dispense head that is made using technology essentially identical to that used in "ink-jet" printer heads, McDevitt et al. fail to make up for the fundamental deficiency between Kneezel et al. and the invention in the present case.

As such, Kneezel et al. in view of McDevitt et al. fail to teach or suggest all of the elements of claims. Applicants respectfully request that the rejection of Claims 1-17 and 29-41 under 35 U.S.C. 103(a) be withdrawn.

CONCLUSION

In view of the amendments and remarks above, the Applicants respectfully submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Bret Field at (650) 327-3400.

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1078.

Respectfully submitted,

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